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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/802,092	03/08/2001	Thomas J. Cloonan	7012	4937

21924 7590 01/10/2007  
ARRIS INTERNATIONAL, INC  
3871 LAKEFIELD DRIVE  
SUWANEE, GA 30024

EXAMINER
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SALTARELLI, DOMINIC D

ART UNIT	PAPER NUMBER
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2623

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/10/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No. 09/802,092	Applicant(s) CLOONAN ET AL.	
	Examiner Dominic D. Saltarelli	Art Unit 2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 November 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, see pages 3-5, filed November 27, 2006, with respect to the rejections of claims 1 and 10 under 35 USC 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new grounds of rejection is made in view of Garrett et al.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1, 9, 10, and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Garrett et al. (US 2002/0023174 A1) [Garrett].

Regarding claims 1 and 10, Garrett discloses a method and system for controlling traffic loading on physical links between a cable modem terminal system (CMTS) and a plurality of Internet Service Providers (ISP) in a cable data system, comprising:

- means for receiving a request for bandwidth on a physical link for a first ISP, wherein the request is initiated by a requesting subscriber (access request from a client and subsequent assignment of an IP address is a request by a subscriber for access to an ISP, paragraph 0034, which is a request for bandwidth on the physical link between the CMTS and the service providers, paragraph 0024);

- means for determining available bandwidth on the physical link;

- means for determining available bandwidth for said first ISP with the amount of requested bandwidth; and

- means for granting or denying cable data service to the new subscriber based upon the determination of whether the available bandwidth is greater than, less than, or equal to the bandwidth to be allocated to the new subscriber (wherein the granting of service IDs for use of bandwidth, or SIDs, to clients bandwidth requests is made from bandwidth availability determinations regarding total available bandwidth and the bandwidth usage agreements between the service providers and the CMTS [the "shares" to individual service providers], paragraph 0044).

Regarding claims 9 and 18, Garrett discloses the method and system of claims 1 and 14, further disclosing means for granting cable data service to said requesting subscriber using available bandwidth reserved for a second ISP (paragraph 0044, "It can then be possible to "borrow" bandwidth from other service provider subscribers when the service provider's share is not fully subscribers, as well as from other service providers when the link is not fully loaded.")

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-4 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garrett.

Regarding claims 2-4 and 11-13, Garrett discloses the method and claims 1 and 10, but fails to disclose means for transferring the new subscriber to a different physical link with more available capacity when the available bandwidth on the requested cable data system link for the first ISP is less than the bandwidth requested by the new subscriber, or wherein said new subscriber's traffic flow is randomly transferred to a different physical link when available bandwidth is less than or equal to the bandwidth to be allocated to the new

subscriber, or availability of bandwidth for said first ISP on other link is determined before the new subscriber is transferred to a physical link with more availability.

The examiner takes official notice that load balancing data traffic across multiple physical links is notoriously well known in the art. Load balancing is a well known and common practice in systems where bandwidth management is essential, such as web servers, distributed databases, video servers, and so forth. Load balancing algorithms that manage the use of available bandwidth seek to evenly distribute the use of said bandwidth across however many physical or virtual links are present in order to prevent any one link from getting over congested. Therefore, any common load balancer, when presented with a new bandwidth request, would examine subsequent links to determine bandwidth availability if the first link has insufficient available bandwidth, and assign the requesting client to one of said subsequent links upon determining bandwidth availability.

Therefore, it would have been obvious at the time to utilize a load balancing algorithm (compatible, of course, with Garrett's disclosed link sharing protocol described in paragraph 0044), for the benefit of efficient bandwidth management by the CMTS across all the physical links (see Garrett, Ethernet switch 227, shown in fig. 2A, paragraph 0024). The load balancing algorithm would then meet all claimed scenarios presented in the claims under the corresponding circumstances.

6. Claims 5-8 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garrett in view of Nattkemper et al. (5,953,318) [Nattkemper].

Regarding claims 5 and 14, Garrett discloses the method and system of claims 1 and 10, wherein Garrett teaches flagging a particular ISP as fully subscribed (paragraph 0044), but fails to disclose means for granting cable data service to said requesting subscriber on aid requested physical link based on CAC algorithms even though the available bandwidth on the requested physical link is less than the bandwidth being allocated to the new subscriber.

In an analogous art, Nattkemper discloses managing bandwidth allocation on a requested physical link using CAC algorithms even though the available bandwidth on the requested physical link is less than the bandwidth being allocated to the new subscriber (col. 16, lines 34-67), for the benefit of supporting a greater number of customers over the existing physical link.

It would have been obvious at the time to a person of ordinary skill in the art to modify the method and system disclosed by Garrett to include managing bandwidth allocation on a requested physical link using CAC algorithms even though the available bandwidth on the requested physical link is less than the bandwidth being allocated to the new subscriber, as taught by Nattkemper, for the benefit of supporting a greater number of customers over the existing physical link. Being flagged as fully subscribed in an over subscribed state is a functional equivalency to flagging an ISP as "over subscribed" in the system of

Garrett as modified by Nattkemper, meeting the claimed limitation of "means for flagging said requested physical link as being over subscribed for said first ISP".

Regarding claims 6-8 and 15-17, Garrett and Nattkemper disclose the method and system of claims 5 and 14, wherein data packets from said first ISP for at least some subscribers on the physical link are purposefully lost when said physical link is over subscribed for said first ISP, wherein which packet to drop during said purposeful losing of packet is determined by the CMTS (Nattkemper, col. 17, lines 1-41), wherein said determination includes the random loss of packets (those packets which arrive after the filling of the buffer and must be dropped upon reaching the bottleneck rate of the port, col. 17, lines 22-32) and data packets are selected to be lost based on each subscriber's level of service, wherein higher levels of service lose less packets (col. 17, lines 1-32).

### ***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any



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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. The following are suggested formats for either a Certificate of Mailing or Certificate of Transmission under 37 CFR 1.8(a). The certification may be included with all correspondence concerning this application or proceeding to establish a date of mailing or transmission under 37 CFR 1.8(a). Proper use of this procedure will result in such communication being considered as timely if the established date is within the required period for reply. The Certificate should be signed by the individual actually depositing or transmitting the correspondence or by an individual who, upon information and belief, expects the correspondence to be mailed or transmitted in the normal course of business by another no later than the date indicated.

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## Certificate of Mailing

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Please refer to 37 CFR 1.6(d) and 1.8(a)(2) for filing limitations concerning facsimile transmissions and mailing, respectively.


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dominic D. Saltarelli whose telephone number is (571) 272-7302. The examiner can normally be reached on Monday - Friday 7:00am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Miller can be reached on (571) 272-7353. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DS

  
**JOHN MILLER**  
**SUPERVISORY PATENT EXAMINER**  
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